28. (new) A frame configured to surround a vehicle license plate, the frame comprising:

a reflective medium attached to the frame, the reflective medium including indicia operable to reflect infrared illumination provided by an infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image; and

graphic components formed of a material that is transmissive to the infrared illumination and the reflected indicia image, and non-transmissive to visible light, the graphic components covering the reflective medium so as to conceal the indicia from human eyesight.

Bnd. Cl 4

REMARKS

Claims 1-23 are pending in the application. Claims 1, 2, 4, 5, 13-17, and 19-22 stand rejected under 35 U.S.C. 102. Claims 3, 6-12, 18, and 23 stand rejected under 35 U.S.C. 103. Claims 1-8 and 22 are hereby canceled. Claims 9, 10, 13-20, and 23 are hereby amended. New claims 24-28 are added. No new matter has been introduced by these amendments. Applicant respectfully traverses the claim rejections.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

CLAIM REJECTIONS

Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Look (U.S. 5,915,032) in view of Ruell (US 4,368,979). This rejection is respectfully traversed, and reconsideration and allowance of amended claims 9-12 is requested.

Claim 9, as amended, is an independent claim directed to an apparatus for reading indicia from a remote location. The apparatus includes an infrared light source for providing infrared illumination, and a reflective medium disposed remotely from the infrared light source. The reflective medium includes indicia operable to reflect the infrared illumination provided by the infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image. The apparatus also includes a light sensing device disposed remotely from the

reflective medium. The light sensing device receives the reflected indicia image and generates an indicia image signal based thereon. An indicia processing system receives the indicia image signal and operates on the indicia image signal to extract indicia information there from.

The apparatus of claim 9 includes a cover over the indicia on the reflective medium. The cover is transmissive to the infrared illumination and to the reflected indicia image, and is non-transmissive to visible light. Because the cover is non-transmissive to visible light, the indicia on the reflective medium beneath the cover are substantially undetectable to human eyesight.

Neither the Look reference or the Ruell reference disclose a cover over a reflective medium, where the cover is transmissive to infrared light and non-transmissive to visible light. Look describes a retroreflective license plate, but does not describe or suggest any sort of cover over indicia on the license plate. Ruell discloses one embodiment of a license plate wherein a holographic pattern (8) is engraved into a material (12) coated onto the surface of a base plate (10). (Col. 4, lines 14-20.) Ruell describes another embodiment wherein a holographic pattern (8) is formed in a foil layer (20) over a base plate (10). (Col. 4, lines 39-64). As described in column 4, lines 39-64, the holographic pattern and the foil layer disclosed by Ruell must be *transparent* to visible light so that the characters of the registration symbol on the base plate may be seen and recognized. Therefore, Ruell does not disclose a cover that is non-transmissive to visible light as required by claim 9.

Since neither Look nor Ruell describe a cover over indicia on a reflective medium that is transmissive to infrared light and non-transmissive to visible light, a combination of the Look and Ruell references lacks this feature of claim 9. Therefore, claim 9 patentably defines over the combination of the Look and Ruell references. Reconsideration and allowance of claim 9 is requested.

Claim 10, as amended, is an independent claim similar to claim 9, except that claim 10 describes graphic components over the indicia on the reflective medium. According to claim 10, the graphic components are transmissive to the infrared illumination and the reflected indicia image, but non-transmissive to visible light. In this manner, the indicia on the reflective medium beneath the graphic components are substantially undetectable to human eyesight. Neither Look nor Ruell describe graphic components over indicia on a reflective medium, where the graphic

components are transmissive to infrared light and non-transmissive to visible light. Thus, a combination of the Look and Ruell references lacks this feature of claim 10. Therefore, claim 10 patentably defines over the combination of the Look and Ruell references. Reconsideration and allowance of claim 10 is requested.

Claims 11 and 12 depend from independent claim 10 as amended, and describe additional important features of the invention. Therefore, claims 11 and 12 patentably define over Look in view of Ruell for at least the same reasons as discussed above for claim 10. Claim 11 further defines over the combination of Look and Ruell because neither cited reference describes or suggests providing alphanumeric characters that are non-transmissive to visible light on top of indicia on a reflective medium. Claim 12 further defines over the combination of Look and Ruell because neither cited reference describes or suggests providing a decoy bar code that is non-transmissive to visible light on top of indicia on a reflective medium. Reconsideration and allowance of dependent claims 11 and 12 is respectfully requested.

Claims 13-17 stand rejected under 35 U.S.C. 102(b) as being anticipated by Look. Claims 13-17, as amended, depend from independent claim 9 as amended, and describe additional important features of the invention. Therefore, claims 13-17 further patentably define over Look for at least the same reasons as discussed above for claim 9. Reconsideration and allowance of dependent claims 13-17 is respectfully requested.

In particular, claim 15 describes the apparatus of claim 9 as including a protective housing in which the light source and the light sensing device are both disposed. The Look reference does not describe a light source and a light sensing device contained within a single housing. As stated in the Office Action, the Look reference is silent on the structural description of the system. The figure of the Look reference appears to indicate that the illumination sources (20 and 30) and the detector (40) are in separate housings. Therefore, claim 15 further patentably defines over the Look reference. Reconsideration and allowance of claim 15 is respectfully requested.

Claim 16 further describes the light source as providing illumination along an illumination path, and the light sensing device as receiving the reflected indicia image along a reflected image path. According to claim 16, the included angle between the illumination path and the reflected image path is no greater than about two degrees. The Look reference is silent regarding the magnitude of an included angle between

the illumination provided by the illumination sources and the line-of-sight of the detector. Thus, a rejection of claim 16 under 35 U.S.C. § 102(b) is improper. Reconsideration and allowance of claim 16 is respectfully requested.

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Look in view of Hudson (US 6,448,889). This rejection is respectfully traversed, and reconsideration and allowance of amended claim 18 is requested.

Claim 18, as amended, is dependent on independent claim 9, and further describes the indicia on the reflective medium as comprising a bar code. As discussed above in reference to claim 9, Look does not describe or suggest a cover over indicia on a reflective medium that is transmissive to infrared light and non-transmissive to visible light. The Hudson reference also does not describe such a cover. Rather, Hudson describes a front fascia (13) which may be made of glass. (Col. 3, lines 53-55.) As shown in Fig. 3 of the Hudson reference, this fascia (13) is positioned in front of an electronic bar code (25). (Col. 4, lines 32-34.) A license identification number (14) is printed or applied on the inside surface of the fascia "so as to be visible to the human eye." (Col. 3, lines 55-58.) Since the license number (14) on the inside surface of the fascia is visible to the human eye, the fascia must be transparent to visible light. Thus, the Hudson reference does not describe or suggest a cover over indicia on a reflective medium that is non-transmissive to visible light as required by independent claim 9 and its dependent claim 18.

Since neither Look nor Hudson describe a cover over indicia on a reflective medium that is transmissive to infrared light and non-transmissive to visible light, a combination of the Look and Hudson references lacks this feature of claim 18. Therefore, claim 18 patentably defines over the combination of the Look and Hudson references. Reconsideration and allowance of claim 18 is requested.

Claims 19-21 stand rejected under 35 U.S.C. 102(b) as being anticipated by Look. Claims 19-21, as amended, depend from independent claim 9 as amended, and describe additional important features of the invention. Therefore, claims 19-21 further patentably define over Look for at least the same reasons as discussed above for claim 9. Reconsideration and allowance of dependent claims 19-21 is respectfully requested.

Claim 23 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Look in view of Hudson. This rejection is respectfully traversed, and reconsideration and allowance of amended claim 23 is requested.

Claim 23, as amended, is directed to an apparatus for reading a bar code from a remote location. The apparatus of claim 23 includes a light source for providing illumination from a fixed location, and a retro-reflective medium operable to be disposed on a vehicle or container that is remote from the light source and moveable relative to the light source. According to claim 23, the retro-reflective medium includes the bar code that is operable to reflect the illumination provided by the light source. Portions of the illumination reflected from the bar code comprise a reflected bar code image. The apparatus also includes a light sensing device located remotely from the retro-reflective medium for receiving the entire reflected bar code image simultaneously and for generating a bar code image signal based on the reflected bar code image. A bar code processing system receives the bar code image signal and operates on the bar code image signal to extract bar code information there from.

As noted in the Office Action, the Look reference does not teach or suggest an indicia comprising a bar code. The Look reference also does not describe a light sensing device located remotely from a retro-reflective medium for receiving an entire reflected bar code image simultaneously.

It is asserted in the Office Action that Hudson teaches a remote bar code reading system, where the bar code is displayed on a vehicle license plate. Applicant respectfully disagrees that Hudson teaches a *remote* bar code reading system. The Hudson reference merely describes an electronic bar code that is "able to be scanned by a bar code scanner." (Col. 4, lines 32-34.) No description of the "bar code scanner" is provided in the Hudson reference, and no indication is provided in the Hudson reference regarding a separation distance between the bar code (25) and the "bar code scanner." According to the McGraw-Hill Dictionary of Scientific and Technical Terms (4th Ed., 1989), a "bar-code scanner" is "an optical scanning device that reads texts which have been converted into a special bar code." As is well known to one skilled in the art, such a bar-code scanner must generally be located in close proximity to the bar code it is scanning. These types of devices generally cannot successfully scan a bar code if they are located remotely from the bar code.

Unlike the "bar code scanner" mentioned in the Hudson reference, the light sensing device of claim 23 is located *remotely* from the retro-reflective medium. Further, unlike the "bar code scanner" mentioned in the Hudson reference, the light sensing device of claim 23 does not scan a bar code, but rather receives an *entire*

reflected bar code image *simultaneously*. Thus, the light sensing device of claim 23 is not a "bar code scanner" such as mentioned in the Hudson reference.

As discussed above, neither the Hudson reference nor the Look reference describe or suggest a light sensing device located remotely from a retro-reflective medium for receiving an entire reflected bar code image simultaneously. Therefore, claim 23 patentably defines over Look in view of Hudson. Reconsideration and allowance of amended claim 23 is requested.

New claim 24 is directed to an apparatus for reading indicia disposed on a moving reflective medium. The apparatus of claim 24 includes a light source and a light sensing device disposed within a single housing that has a window, where the housing is located remotely from the moving reflective medium. According to claim 24, the light source provides illumination through the window to illuminate the moving reflective medium, and the light sensing device receives a reflected indicia image through the same window in the housing. Background for claim 24 is provided at page 5, lines 15-22 of the application.

The references cited in the Office Action, alone or in combination, do not include all of the features of claim 24. Consideration and allowance of claim 24 is requested.

New claims 25-28 are directed to features of a frame surrounding a vehicle license plate, and apparatuses including such a frame. Background for new claims 25-28 is provided on pages 7-8 of the application. The references cited in the Office Action, alone or in combination, do not include all of the features of claims 25-28. Consideration and allowance of claims 25-28 is requested.

Applicant asserts that the claims patentably define over the prior art references made of record and not relied upon in the Office Action at least for the same reasons as discussed above.

Having now fully and completely responded to the Office Action, Applicant asserts that the claims are all fully in condition for allowance. Reconsideration and allowance are respectfully requested.

If the Examiner identifies further issues which may be resolved by telephone, the Examiner is invited to contact the undersigned at (865) 546-4305.

In the event that this response is not timely filed, Applicant hereby petitions for an appropriate extension of time. The fee for this extension, along with any

other fees which may be due with respect to this response, may be charged to our deposit account No. 12-2355.

Sincerely,

LUEDEKA, NEELY & GRAHAM, P.C.

By: Mark P. Crockett

Mark P. Crockett, 47,507

P.O. Box 1871
Knoxville TN 37901
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* * *

I hereby certify that this correspondence is being deposited on the date below with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington DC 20231.

3/4/03
Date

Mark P. Crockett
Mark P. Crockett, 47,507

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

.Cancel claims 1-8 without prejudice or disclaimer.

9. (amended) An apparatus for reading indicia from a remote location, comprising:

an infrared light source for providing infrared illumination;

a reflective medium disposed remotely from the infrared light source, the reflective medium including indicia operable to reflect the infrared illumination provided by the infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image;

a light sensing device disposed remotely from the reflective medium, the light sensing device for receiving the reflected indicia image and for generating an indicia image signal based thereon;

an indicia processing system for receiving the indicia image signal and for operating on the indicia image signal to extract indicia information there from; and

[The apparatus of claim 2 further comprising]

a cover over the indicia on the reflective medium which is transmissive to the infrared [light] illumination and the reflected indicia image and non-transmissive to visible light, such that the indicia on the reflective medium beneath the cover are substantially undetectable to human eyesight.

10. (amended) An apparatus for reading indicia from a remote location, comprising:

an infrared light source for providing infrared illumination;

a reflective medium disposed remotely from the infrared light source, the reflective medium including indicia operable to reflect the infrared illumination provided by the infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image;

a light sensing device disposed remotely from the reflective medium, the light sensing device for receiving the reflected indicia image and for generating an indicia image signal based thereon;

an indicia processing system for receiving the indicia image signal and for operating on the indicia image signal to extract indicia information there from; and

[The apparatus of claim 2 further comprising]

graphic components over the indicia on the reflective medium which are transmissive to the infrared [light] illumination and the reflected indicia image and non-transmissive to visible light, such that the indicia on the reflective medium beneath the graphic components are substantially undetectable to human eyesight.

13. (amended) The apparatus of claim [1] 9 wherein the light sensing device further comprises a camera incorporating charge-coupled devices.

14. (amended) The apparatus of claim [1] 9 wherein the reflective medium is disposed at least 5 feet away from the light source and the light sensing device.

15. (amended) The apparatus of claim [1] 9 further comprising a protective housing in which the light source and the light sensing device are disposed.

16. (amended) The apparatus of claim [1] 9 wherein the light source provides the illumination along an illumination path, the light sensing device receives the reflected indicia image along a reflected image path, and wherein an included angle between the illumination path and the reflected image path is no greater than about two degrees.

17. (amended) The apparatus of claim [1] 9 further comprising:

the light sensing device for generating the indicia image signal as a bit-mapped image of the indicia; and

the indicia processing system for receiving the bit-mapped image and for operating on the bit-mapped image to extract the indicia information therefrom.

18. (amended) The apparatus of claim [1] 9 wherein the indicia further comprise a bar-code.

19. (amended) The apparatus of claim [1] 9 wherein the reflective medium further comprises a retro-reflective material.

20. (amended) The apparatus of claim [1] 9 wherein the light sensing device is operable to receive the reflected indicia image and generate the indicia image signal, and the indicia processing system is operable to operate on the indicia image signal to extract the indicia information as the reflective medium is moving relative to the light source and the light sensing device.

Cancel claim 22 without prejudice or disclaimer.

23. (amended) An apparatus for reading a bar code from a remote location, comprising:

a light source for providing illumination from a fixed location;

a retro-reflective medium operable to be disposed on a vehicle or container which is remote from the light source and which is moveable relative to the light source, the retro-reflective medium including the bar code which is operable to reflect the illumination provided by the light source, where portions of the illumination reflected from the bar code comprise a reflected bar code image;

a light sensing device disposed at the fixed location remote from the retro-reflective medium for receiving the entire reflected bar code image simultaneously and for generating a bar code image signal based thereon; and

a bar code processing system for receiving the bar code image signal and for operating on the bar code image signal to extract bar code information therefrom as the retro-reflective medium is moving relative to the light source and the light sensing device.

24. (new) An apparatus for reading indicia disposed on a moving reflective medium, comprising:

a housing disposed remotely from the moving reflective medium, the housing including a window;

a light source disposed within the housing for providing illumination through the window to illuminate the moving reflective medium, where

portions of the illumination reflected from the indicia comprise a reflected indicia image;

a light sensing device disposed within the housing, the light sensing device for receiving the reflected indicia image through the window and for generating an indicia image signal based thereon; and

an indicia processing system for receiving the indicia image signal and for operating on the indicia image signal to extract indicia information there from.

25. (amended) An apparatus for reading indicia from a remote location, comprising:

an infrared light source for providing infrared illumination;

a frame configured to surround a vehicle license plate, the frame having at least a portion formed from material that is transmissive to infrared illumination and non-transmissive to visible light;

a reflective medium attached to the portion of the frame, the reflective medium including indicia operable to reflect the infrared illumination provided by the infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image;

a light sensing device disposed remotely from the reflective medium, the light sensing device for receiving the reflected indicia image and for generating an indicia image signal based thereon; and

an indicia processing system for receiving the indicia image signal and for operating on the indicia image signal to extract indicia information there from.

26. (new) An apparatus for reading indicia from a remote location, comprising:

an infrared light source for providing infrared illumination;

a frame configured to surround a vehicle license plate;

a reflective medium attached to the frame, the reflective medium including indicia operable to reflect the infrared illumination provided by the infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image;

graphic components formed of a material that is transmissive to the infrared illumination and the reflected indicia image, and non-transmissive to visible light, the graphic components attached to the frame and covering the indicia so as to conceal the indicia from human eyesight;

a light sensing device disposed remotely from the reflective medium, the light sensing device for receiving the reflected indicia image and for generating an indicia image signal based thereon; and

an indicia processing system for receiving the indicia image signal and for operating on the indicia image signal to extract indicia information there from.

27. (new) The apparatus of claim 26 wherein the indicia comprises an actual bar code and the graphic components comprise a decoy bar code.

28. (new) A frame configured to surround a vehicle license plate, the frame comprising:

a reflective medium attached to the frame, the reflective medium including indicia operable to reflect infrared illumination provided by an infrared light source, where portions of the infrared illumination reflected from the indicia comprise a reflected indicia image; and

graphic components formed of a material that is transmissive to the infrared illumination and the reflected indicia image, and non-transmissive to visible light, the graphic components covering the reflective medium so as to conceal the indicia from human eyesight.